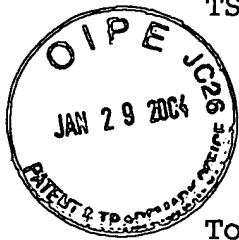


TSMC-02-818



January 6, 2004

To: Commissioner for Patents
P.O.Box 1450
Alexandria, VA 22313-1450

Fr: George O. Saile, Reg. No. 19,572
28 Davis Avenue
Poughkeepsie, N.Y. 12603

Subject: | Serial No. 10/689,421 10/20/03 |

Denny D. Tang et al.

REFERENCE GENERATOR FOR MULTILEVEL
NONLINEAR RESISTIVITY MEMORY STORAGE
ELEMENTS

INFORMATION DISCLOSURE STATEMENT

Enclosed is Form PTO-1449, Information Disclosure Citation
In An Application.

The following Patents and/or Publications are submitted to
comply with the duty of disclosure under CFR 1.97-1.99 and
37 CFR 1.56.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being
deposited with the United States Postal Service as first class
mail in an envelope addressed to: Commissioner for Patents,
P.O. Box 1450, Alexandria, VA 22313-1450, on January 27, 2004.

Stephen B. Ackerman, Reg.# 37761

Signature/Date

SB Ackerman 1/27/04

"Demonstration of a Four State Sensing Scheme for a Single Pseudo-Spin Valve GMR Bit," Zhang et al., IEEE Transactions on Magnetics, Vol. 35, No. 5, Sept. 1999, pp. 2829-2831, describes a simple and fast method for sensing four states from a single Pseudo-Spin Valve GMR device.

"Windowed MRAM Sensing Scheme," Zhang et al., "Memory Technology, Records of the 2000 IEEE International Workshop on Design and Testing," August 2000, pp. 47-52, details a method for allowing bits with unstable domains to be detected during reading.

"A Novel Sensing Scheme for an MRAM with a 5% MR Ratio," Yamada et al., 2001 Symposium on VLSI Circuits Digest of Technical Papers, June 2001, pp. 123-124, provides a novel sensing scheme for a magneto-resistive random access memory (MRAM) with a twin cell structure.

"Fully Integrated 64Kb MRAM with Novel Reference Cell Scheme," Jeong et al., Digest International Electron Devices Meeting - IEDM '02, Dec. 2002, pp. 551-554, employs a new sensing scheme with a separated half-current source.

U.S. Patent 6,055,178 to Naji, "Magnetic Random Access Memory with a Reference Memory Array," teaches an MRAM device that includes a memory array and a reference memory array.

U.S. Patent 6,317,376 to Tran et al., and U.S. Patent Application Publication US 2001/0053104 A1 to Tran et al., both "Reference Signal Generation for Magnetic Random Access Memory Devices," describe a Magnetic Random Access Memory (MRAM) device.

U.S. Patent 6,169,689 to Naji, "MTJ Stacked Cell Memory Sensing Method and Apparatus," illustrates an MTJ stacked cell memory sensing method and apparatus.

The following two U.S. Patents disclose readout circuitry for a magnetic tunneling junction (MTJ) memory cell:

- 1) U.S. Patent 6,385,109 to Naji, "Reference Voltage Generator for MRAM and Method."
- 2) U.S. Patent 6,426,907 to Hoenigschmid, "Reference for MRAM Cell."

U.S. Patent 6,496,436 to Naji, "Reference Voltage Generator for MRAM and Method," discloses a readout circuitry for a magnetic tunneling junction (MTJ) memory cell, or an array of MTJ memory cells.

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U.S. Patent 6,445,612 to Naji, "MRAM with Midpoint
Generator Reference and Method for Readout," specifies an MRAM
with midpont generator reference and method for readout.

Sincerely,

A handwritten signature in black ink, appearing to read 'SBA', with a large, stylized loop at the end.

Stephen B. Ackerman,
Reg. No. 37761

Form PTO-1449

Doc No (Number) (Optional)

Application Number

TSmc-02-818

10/689,421

Applicant

Denng D. Tang et al.

Filing Date

10/20/03

Drawings Unit



INFORMATION DISCLOSURE CITATION
IN AN APPLICATION

(Use several sheets if necessary)

U. S. PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
6317376	11/13/01	Tran et al.	365	210	6/20/00
6055178	4/25/00	Naji	365	158	12/18/98
6169689	1/2/01	Naji	365	173	12/8/99
6385109	5/7/02	Naji	365	209	1/30/01
6426907	7/30/02	Hoernigschmid	365	210	4/17/01
6445612	9/3/02	Naji	365	158	8/27/01
6496436	12/17/02	Naji	365	209	3/5/02

FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
					YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Portion of Pages, Etc.)

-	"Demonstration of a Four State Sensing Scheme for a Single Pseudo-Spin Valve GMR Bit," Zhang et al., IEEE Trans. on Magnetics, Vol. 35, No. 5, Sept. 1999, pp. 2829-2831.
-	"Windowed MRAM Sensing Scheme," Zhang et al., "Memory Tech., Records of the 2000 IEEE Int'l Workshop on Design and Testing," Aug. 2000, pp. 47-52.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.

Doctor Number (Optional)

Acute-on-chronic hepatitis

TSMC-02-818

10/689,421

Lauren

Denny D. Tang et al.

Filing Date

10/20/03

GROUP ART UNIT

(Use several sheets if necessary)

U. S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT DOCUMENTS

[illegible]

OTHER DOCUMENTS (Including Author, Title, Date, Portion of Pages, Etc.)

- "A Novel Sensing Scheme for an MRAM with a 50% MR Ratio," Yamada et al., 2001 Symp. on VLSI Circuits Digest of Tech. Papers, June 2001, pp. 123-124.
- "Fully Integrated 64Kb MRAM with Novel Reference Cell Scheme," Jeong et al., Digest Int'l Electron Devices Meeting - IEDM'02, Dec. 2002, pp. 551-554.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.

Form PTO-1449

Doctor Number (Opinion)

Afternoon Journal

TSMC-02-818

10/689,421

Application

Denng D. Tang et al.

Filing Date

10/20/03

Group 11 Unit

U. S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT DOCUMENTS

[illegible]

OTHER DOCUMENTS (Including Author, Title, Date, Portion, Pages, Etc.)

		U.S. Patent Application Publication US 2001/0053104A1
		to Tran et al., "Reference Signal Generation for
		Magnetic Random Access Memory Devices", Pub. Date 12/20/01,
		Filed 3/14/01, U.S. Cl. 365/210.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.